



Examining the Mediating Role of Academic Procrastination in the Relationship between University Students' Fear of Negative Evaluation and Problematic Smartphone Use

Üniversite Öğrencilerinin Olumsuz Değerlendirilme Korkuları ile Problemlili Akıllı Telefon Kullanımları Arasındaki İlişkide Akademik Ertelemenin Aracı Rolünün İncelenmesi

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ABSTRACT: This research examines the mediating role of academic procrastination in the relationship between fear of negative evaluation and problematic smartphone use among university students. A total of 317 university students (180 females and 137 males, $\bar{X} = 21.19 \pm 2.38$) participated in the study and completed The Brief Fear of Negative Evaluation Scale, The Tuckman Procrastination Scale, and the Short Form of the Smartphone Addiction Scale. Structural Equation Modeling was used for data analysis. According to results, fear of negative evaluation predicts problematic smartphone usage through the full mediation of academic procrastination. In this context, it can be said that university students with a high level of fear of negative evaluation experience more academic procrastination and this academic procrastination increases problematic internet use. In the discussion and conclusion section, explanations related to the research findings, limitations of the study, and suggestions for future research were provided.

Keywords: Fear of negative evaluation, problematic smartphone use, academic procrastination, university students, structural equation modeling

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ÖZ: Bu arařtırmada üniversite öğrencilerinde olumsuz değerlendirilme korkusu ile problemlı akıllı telefon kullanımı arasındaki ilişkide akademik erteleme aracının rolü incelenmiştir. Arařtırmaya katılan 317 (180 kadın ve 137 erkek, $\bar{X}=21.19\pm 2.38$) üniversite öğrencisi Olumsuz Değerlendirilme Korkusu Ölçeđi Kısa Formu, Tuckman Erteleme Ölçeđi ve Akıllı Telefon Bađımlılıđı Ölçeđi- Kısa Formunu doldurmuřtur. Verilerin analizi için Yapısal Eřitlik Modellemesi kullanılmıřtır. Arařtırmanın bulgularına göre olumsuz değerlendirilme korkusu problemlı akıllı telefon kullanımını akademik erteleme aracının tam aracılıđı ile yordamaktadır. Bu bađlamda olumsuz değerlendirilme korku düzeyi yüksek olan üniversite öğrencilerinin daha çok akademik erteleme yapacađı ve bu akademik erteleme problemlı internet kullanımını artıracakđı söylenebilir. Tartıřma ve sonu kısmında arařtırma bulgusuna iliřkin aıklamalara, arařtırmanın sınırlılıklarına ve yeni alıřmalar için önerilere yer verilmiştir.

Anahtar sözcükler: Olumsuz değerlendirilme korkusu, problemlı akıllı telefon kullanımı, akademik erteleme, üniversite öğrencisi, yapısal eřitlik modellemesi

1. INTRODUCTION

The fear of negative evaluation is defined as the continuous and excessive apprehension an individual experiences about being criticized by others in a hostile and derogatory manner (Cetin, İlhan, & Yılmaz, 2014). In the context of the fear of negative evaluation, it can be asserted that the individual holds a belief that evaluations made by others about themselves will be unfavorable. Doğan (2009) explicated the fear of negative evaluation as an anxiety and distress experienced by individuals, wherein they anticipate being belittled, mocked, or scorned in a negative manner by others in their social relationships or situations requiring their performance. Individuals who experience the fear of negative evaluation tend to experience anxiety when they are in environments where they anticipate being evaluated. They may enter into a vicious cycle, believing that their anxiety will be noticed by others and consequently, they will be subjected to negative evaluation once again (Wei, Zhang, Li, Xue, & Zhang, 2015).

The fear of negative evaluation can be a highly distressing condition for individuals who experience this fear. For instance, individuals who experience this fear may avoid entering social situations and refrain from engaging in social behaviors. Beck and Emery (2011) have delineated three distinct categories of situations in which the fear of negative evaluation can occur, namely social situations, situations related to school or work, and situations related to the external world. Consequently, it can be stated that the fear of negative evaluation may arise from various reasons. When examining the existing literature, it is evident that the fear of negative evaluation is positively associated with concepts such as depression (Kornienko & Santos, 2014), shyness (Liss, Schiffrin & Rizzo, 2013), neuroticism (Hazel, Keaten, & Kelly, 2014), perfectionism (Hamarta, 2009) and social appearance anxiety (Çetin, Doğan, & Sapmaz, 2010).

Another concept believed to be associated with the fear of negative evaluation is academic procrastination. Academic procrastination is defined as delaying the initiation or completion of academic tasks, such as homework, exam preparation, or course registration (Senecal, Julien, & Guay, 2003). Furthermore, in academic procrastination, individuals not only delay their academic tasks but also experience anxiety due to this delay (Rothblum, Solomon, & Murakami, 1986). When individuals postpone completing academic tasks until the last minute, they can experience anxiety both during the period leading up to that last moment, contemplating questions like "When will I start this task?" and at the last moment itself, thinking "How will I manage to complete this task?" from the moment the academic task is assigned.

In the literature, it is seen that academic procrastination is positively related to concepts such as depression (Senecal, Koestner, & Vallerand, 1995), stress (Sharma & Kaur, 2011), low level of self-esteem, ineffective stress management (Deniz, Traş, & Aydoğan, 2009) and low level of life satisfaction (Balkıs, 2013). Additionally, it is evident that the fear of negative evaluation serves as a predictor of academic procrastination (Berber-Çelik, 2014). When considering the reasons behind academic procrastination behavior, the fear of negative evaluation and the fear of failure are highlighted as significant factors (Solomon & Rothblum, 1984). Accordingly, individuals may postpone the timely completion of their academic tasks out of fear that they will receive negative evaluations if they do not perform their tasks well enough. This is because individuals hold certain beliefs that if they do not complete their academic responsibilities adequately, they will be ridiculed, deemed as failures, or belittled among other notions. Consequently, it can be thought that individuals postpone their academic tasks due to fear of negative evaluation or failure thoughts.

Individuals who engage in academic procrastination may turn to activities that provide pleasure in the short term as a means to alleviate the anxiety they experience (Ferrari & Emmons, 1995). This is because individuals who are prone to academic procrastination are reported to have a tendency to engage in actions that provide short-term pleasure rather than focusing on long-term accomplishments (Pychyl, Lee, Thibodeau, & Blunt, 2000). In this context, it can be inferred that individuals who engage in academic procrastination may participate in enjoyable activities such as playing games, socializing, or watching movies as a way to distance themselves from the anxiety they are experiencing.

One of the most prevalent groups exhibiting academic procrastination is university students (Çetin, 2009). University students often encounter various academic tasks in different courses, such as assignments, presentations, and projects, which require not only the acquisition of knowledge but also the application of their own creativity. This situation is less common in their previous education process. However, during their university education, preparing academic tasks that go beyond mere knowledge and contribute something meaningful can be anxiety-inducing, particularly for students prone to academic procrastination. Consequently, students who engaged in academic procrastination may turn to activities that provide them short-term pleasures as a means to evade anxiety.

It can be postulated that university students who display academic procrastination behavior in conjunction with the fear of negative evaluation may opt for solitary or ambiguous identity contexts rather than face-to-face social settings to alleviate their anxiety. This preference may arise from the perception that they feel more secure in environments where they are alone or their identity is indistinct, as they are less prone to experiencing the fear of negative evaluation. It can be said that university students who experience the fear of negative evaluation and engage in academic procrastination may access environments where they can avoid anxiety without facing evaluation through the smartphones they consistently carry with them. Indeed, smartphone usage is widely prevalent among university students (Amez & Baert, 2020; Colak, 2022). Furthermore, it is worth noting that problematic smartphone usage is also prevalent among university students (Sunday, Adesope & Maarhuis, 2021).

Problematic smartphone usage refers to the pleasure derived from smartphone usage despite its adverse impact on an individual's avoidance of problems and social life (Süler, 2016). Additionally, the desire for smartphone usage and thinking about using one's smartphone when it is not present are also indicators of problematic smartphone usage (Cheever, Rosen, Carrier & Chave, 2014).

The prevalence of problematic smartphone usage among university students can be attributed to several factors. Firstly, the constant availability of smartphones, coupled with their accessibility to enjoyable activities such as gaming, internet browsing, social media engagement and online shopping, contributes to this phenomenon. Moreover, individuals can participate in these activities without having to reveal their identity. However, despite providing immediate gratification, problematic smartphone usage may lead to long-term consequences, causing individuals to become increasingly detached from their daily lives and hindering the completion of their tasks and responsibilities. In this context, it can be asserted that problematic smartphone usage has the potential to adversely affect all aspects of a university student's lives.

It can be asserted that university students with problematic smartphone usage tendencies often employ their smartphones as a means to avoid anxiety and seek pleasure (Mantymaki & Islam, 2016). In other words, problematic smartphone usage can be viewed as an escape route from both the fear of negative evaluation and the anxiety induced by academic procrastination. In this context, it is plausible to consider that university students experiencing the fear of negative evaluation may engage in academic procrastination and resort to problematic smartphone usage as a means of coping with the anxiety

associated with academic procrastination. This research aims to investigate the mediating role of academic procrastination in the relationship between the fear of negative evaluation and problematic smartphone usage among university students. By doing so, it seeks to contribute to an understanding of the underlying factors contributing to problematic smartphone usage frequently observed among university students.

2. METHOD

In this research, a quantitative research design was employed, utilizing a correlational survey approach, to investigate the mediating role of academic procrastination in the relationship between university students' fear of negative evaluation and problematic smartphone usage.

2.1. Research Group

This research was conducted with the participation of 317 voluntary university students studying at different universities in Türkiye ($Age_{range} = 18-27$, $Age_{mean} = 21.19$, $Age_{sd} = 2.38$). Of the participants, 180 (56.8%) were female, and 137 (43.2%) were male. When the distribution of university students in terms of class level was examined, 86 (27.1%) were freshmen, 66 (20.8%) were sophomores, 93 (29.3%) were juniors, and 72 (22.7%) were seniors.

2.2. Measures

2.2.1. *The Brief Fear of Negative Evaluation Scale*

The Brief Fear of Negative Evaluation Scale was developed by Leary (1983). It's adaptation into Turkish was conducted by Çetin, Doğan, and Sapmaz (2010). The scale consists of 11 items, each rated on a 5-point Likert scale ranging from "1=Not at all appropriate" to "5=Completely appropriate." Higher scores on the scale indicate a greater fear of negative evaluation. Items 2, 6, and 9 in the scale are reverse-coded. The scores that can be obtained from the scale vary between 11-55. This single-factor scale explains 40.19% of the total variance and has factor loadings ranging from .34 to .74. Moreover, item-total correlations range from .37 to .68. The internal consistency coefficient of the scale is reported as .84, and the test-retest reliability is .82. In this study, the Cronbach's alpha internal consistency coefficient for the scale was found to be .89.

2.2.2. *The Tuckman Procrastination Scale*

The Tuckman Procrastination Scale was developed by Tuckman (1991) and adapted into Turkish by Uzun-Özer, Saçkes, and Tuckman (2013). The Turkish version of the scale consists of 14 items, with responses rated on a 5-point Likert scale ranging from "1=Strongly disagree" to "5=Strongly agree." Higher scores on the scale indicate a higher level of academic procrastination. Items 6, 10, 12, and 14 in the scale are reverse-coded. The scores that can be obtained from the scale vary between 14-70. Confirmatory factor analysis confirmed the unidimensional structure consisting of 14 items (RMSEA = 0.056, CI: 0.047-0.064; GFI = 0.99, CFI = 0.98). The internal consistency coefficient of the scale is reported as .90, and the correlation coefficient between applications conducted with a two-week interval

is .80. In this study, the Cronbach's alpha internal consistency coefficient for the scale was found to be .85.

2.2.3. The Smartphone Addiction Scale - Short Form

The Smartphone Addiction Scale was developed by Kwon, Kim, Cho, and Yang (2013) and adapted into Turkish by Noyan and colleagues (2015). The Turkish version of the scale consists of 10 items, with responses rated on a 6-point Likert scale ranging from "1=Strongly disagree" to "6=Strongly agree". The scores that can be obtained from the scale vary between 10-60. Higher scores on the scale are indicative of a higher risk of addiction. There are no reverse-coded items in the scale. It has been observed that the one-dimensional structure consisting of 10 items explains 46.3% of the total variance in scores. According to the principal component analysis, the factor loadings of the items in the scale range from 0.49 to 0.83. The item-total correlations for the items in the scale vary between 0.40 and 0.75. The Cronbach's alpha coefficient for the scale is reported as 0.87, and the test-retest reliability coefficient is determined as 0.93. In this study, the Cronbach's alpha for the scale was found to be 0.88.

2.2.4. The Personal Information Form

The Personal Information Form, prepared by the researcher, includes questions related to participants' gender, ages, and academic class levels.

2.2.5. The Informed Consent Form

In this form, participants have been informed about the purpose of the study. Additionally, it is emphasized that participation in the research is based on informed consent and participants have the right to withdraw their participation at any time. Furthermore, the researcher's contact information has been provided in the form.

2.3. Procedure

In the context of the research, research and publication ethics were adhered to in all procedures carried out. Firstly, ethical permission was obtained from Eskişehir Osmangazi University Social and Human Sciences Human Research Ethics Committee (Approval number: 2300186671). Afterwards, the informed consent form, the personal information form and the scales intended for use were initially prepared using Google Forms and made available to participants. Within the scope of the research, the participants were contacted online via the internet. In this context, the informed consent form, the personal information form and the scales were initially prepared for participants using Google Forms and made ready for their use. During the data collection phase, participants were first asked to complete the informed consent form. Participants who completed the informed consent form proceeded to fill out the personal information form and scales for use in the research on the next page of Google Forms. A total of 335 participants' data were collected in the study. Data from participants who withdrew (4 participants) and those who left more than half of the scales incomplete (14 participants) were excluded, and the analyses were conducted with 317 participants.

2.4. Data Analysis

In this study, which aims to establish the relationship network between university students' fear of negative evaluation, academic procrastination, and problematic smartphone use, correlation analysis and descriptive statistics were first conducted. Subsequently, Structural Equation Modeling (SEM) was employed. SEM is considered a powerful quantitative analysis method because it allows decision-making based on multiple parameters (Kline, 2011). Following Kline's (2011) recommendations, a two-stage SEM was utilized in the study. In the first stage, it was examined whether the measurement model, which deals with the relationships between indicator variables and latent variables created by them, was confirmed. After confirming the measurement model, the hypothetical structural model proposed was tested. To evaluate the results of SEM, goodness-of-fit indices recommended by Hu and Bentler (1999) were considered. In this context, chi-square (χ^2) and degrees of freedom, as well as CFI, NFI, TLI, GFI, SRMR, and RMSEA values were calculated. Critical values taken into account included χ^2/df ratio being less than 5, CFI, NFI, TLI, and GFI values exceeding .90, and SRMR and RMSEA values being less than .80 (Hu and Bentler, 1999; MacCallum, Browne & Sugawara, 1996).

In addition to SEM, the increasingly prevalent bootstrapping procedure, which provides additional evidence for mediation, was used (Preacher and Hayes, 2008). With bootstrapping, the sample size was increased to 5,000, and confidence intervals (C.I.) were generated with bootstrap values. The absence of zero within the confidence intervals reveals that the tested mediation model is also significant.

3. FINDINGS

The correlation and descriptive statistics for the variables, including the arithmetic mean, standard deviation, skewness, and kurtosis values, are presented in Table 1. Upon examining Table 1, it can be observed that the skewness values and kurtosis values of the variables fall within the normality criteria specified by Finney and DiStefano (2006), which are ± 2 for skewness and ± 7 for kurtosis.

Table 1: Descriptive Statistics and Correlations

Variable	1	2	3
1. Fear of negative evaluation	-		
2. Academic procrastination	.273**	-	
3. Problematic smartphone use	.211**	.393**	-
Mean	29.16	40.53	27.87
Standard deviation	9.30	11.84	10.68
Skewness	.153	.233	.521
Kurtosis	-.590	.196	-.309
Cronbach α	.893	.853	.884

Not. ** $p < .001$

When examining the relationships presented in Table 1, it is observed that fear of negative evaluation has a significant positive relationship with academic procrastination, $r = .273$, $p < .001$.

Similarly, fear of negative evaluation is also significantly positively related to problematic smartphone use, $r = .211$, $p < .001$. In addition, it is understood that there are significant positive relationships between academic procrastination and problematic smartphone use, $r = .393$, $p < .001$.

3.1. Measurement Model

The measurement model, comprising three latent variables, namely fear of negative evaluation, academic procrastination, and problematic smartphone use, along with a total of 8 observed variables, appears to fit well according to the results. The results indicate that the measurement model fits well, χ^2/df ($N = 317$) = 2.58, $p < .001$; CFI = .98; NFI = .97; TLI = .97; GFI = .96; SRMR = .038; RMSEA = .071. Additionally, it is evident that factor loadings range from .75 to .94. Based on these values, it can be concluded that the observed variables effectively represent the latent variables.

3.2. Structural Model

In the structural model, initially, a model was tested where academic procrastination partially mediated the relationship between university students' fear of negative evaluation and problematic smartphone use. Age and gender variables can be used as control variables in mediation models to reduce the confounding effect. Therefore, age and gender were entered in the structural model as control variables. In the partial mediation model, a direct path is established between fear of negative evaluation (independent variable) and problematic smartphone use (dependent variable). When examining the fit indices of the model where academic procrastination partially mediated the relationship, it can be said that all values are at an acceptable level: χ^2/df ($N = 317$) = 1,91, $p < .001$; CFI = .98; NFI = .96; TLI = .97; GFI = .96; SRMR = .042; RMSEA = .054. However, it was found that the path from the independent variable to the dependent variable was not significant ($\beta = .058$, $p > .05$). Therefore, this path was removed, and the model was retested with full mediation. After the analyses, it is understood that the model with academic procrastination as a full mediator also has acceptable fit indices: χ^2/df ($N = 317$) = 1.88, $p < .001$; CFI = .98; NFI = .96; TLI = .97; GFI = .96; SRMR = .047; RMSEA = .053. It was observed that all path coefficients in the full mediation model were significant. Therefore, this model was preferred. In the bootstrapping analysis, it is observed that the indirect path coefficient is statistically significant (bootstrap coefficient = .125, 95% C.I. = [.069, .198]). This finding indicates that the indirect effect of the independent variable on the dependent variable through the mediator is significant, supporting the mediation hypothesis. The coefficients for the full mediation model are presented in Figure 1.

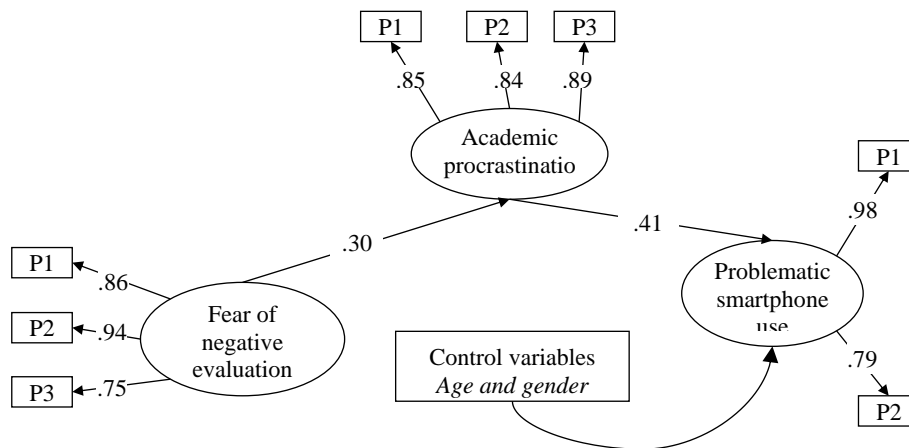


Figure 1: The Standardized Path Coefficients for the Full Mediation Model.
 Note. P = parcel.

4. DISCUSSION and CONCLUSION

In this study, the interrelationships among university students' fear of negative evaluation, academic procrastination, and problematic smartphone usage were examined. It was determined that academic procrastination fully mediated the relationship between the fear of negative evaluation and problematic smartphone use. According to this finding, as university students' levels of fear of negative evaluation increase, academic procrastination is expected to increase, and with an increase in academic procrastination, the levels of problematic smartphone usage among university students are statistically supported to elevate.

It is considered important to systematically evaluate the model under examination in this research. Within this context, firstly it can be posited that university students' fear of negative evaluation statistically positively predicts academic procrastination. Individuals experiencing fear of negative evaluation are noted to hold a belief that, regardless of their actions, they will be negatively evaluated (Çetin, İlhan & Yılmaz, 2014). Furthermore, these individuals tend to avoid performing a task for which they anticipate an evaluation because they believe they will be incapable of executing the task competently (Doğan, 2009).

University students are expected to perform various academic tasks throughout their educational journey, such as homework assignments, presentations, report writing, taking exams and performance demonstrations. These academic tasks subject students to evaluations based on their performance. Individuals who experience fear of negative evaluation live with the anxiety and fear that they will be negatively assessed in various unfavorable ways, such as being belittled, ridiculed, or scorned by others when they are required to complete a task. In this context, it can be argued that students who experience fear of negative evaluation may engage in academic procrastination as a means to avoid the fear and anxiety associated with these tasks. Indeed, findings obtained in the study support this explanation. Additionally, similar results were obtained in a study conducted by Berber Çelik (2014). Therefore, it can be concluded that the finding suggesting a positive relationship between fear of negative evaluation and academic procrastination in university students is consistent with the existing literature and represents an expected outcome.

Another finding in the research model is that academic procrastination positively predicts problematic smartphone use. As previously mentioned, university students are required to complete various academic tasks such as exams, homework assignments or projects throughout their educational journey to achieve success and graduate. However, it is well-known that academic procrastination is prevalent among university students (Çetin, 2009). Due to the greater diversity in academic achievement criteria in university education compared to secondary and primary education, university students are faced with more complex and challenging tasks than their previous educational experiences. In this context, it can be argued that university students encountering more complex and demanding tasks than in their previous educational experiences may struggle to complete these tasks and experience anxiety and exhibit avoidance behaviors (Pychyl, Lee, Thibodeau & Blunt, 2000). It is stated that individuals who engage in academic procrastination tend to indulge in activities that provide short-term pleasure and enjoyment rather than focusing on long-term accomplishments (Ferrari & Emmons, 1995). Examining explanations related to problematic smartphone usage, it is observed that individuals quickly access activities that bring them pleasure, such as playing games, browsing the internet, using social media, or online shopping. In this context, it can be said that the finding indicating a positive relationship between academic procrastination and problematic smartphone usage among university students is an expected outcome.

According to the last finding in the research model, fear of negative evaluation can increase problematic smartphone use through academic procrastination. Problematic smartphone usage is defined as deriving enjoyment from smartphone use despite being aware of its negative consequences on one's problems and social life (Süler, 2016). In this explanation, problematic smartphone usage involves both avoiding long-term responsibilities and engaging in short-term gratifying actions. Moreover, individuals can hide their identity while engaging in problematic smartphone usage. Based on these points, it can be argued that university students who exhibit academic procrastination behavior due to fear of negative evaluation may prefer solitary or anonymous environments to escape anxiety. Furthermore, university students who experience fear of negative evaluation and engage in academic procrastination may find it convenient to access environments where they can avoid anxiety through the smartphones they constantly carry with them. In this context, it can be said that university students' fear of negative evaluation may increase problematic smartphone use through academic procrastination which is a plausible and expected result. Problematic smartphone usage is often referred to as smartphone addiction in various sources, and it has even been suggested to be a type of behavioral addiction (Kayis, Satici, Deniz, Satici, & Griffiths, 2022; Kutuk, 2023). As a result, it can be said that this study is important in terms of shedding light on the studies to be conducted to protect the psychological health of university students by revealing a model for problematic smartphone use, which is becoming increasingly common among university students.

4.1. Limitations and Suggestions

This study, which examines the mediating role of academic procrastination between university students' fear of negative evaluation and problematic smartphone usage, has some limitations. The first limitation is the use of self-report measurement tools for data collection. Due to the acquisition of data through self-report measures, it should be noted that variables can only be explained within the scope of the measurement tools, and participants' social desirability biases should be taken into account. In future research, to overcome this limitation, in addition to self-report measurement tools, different methods and techniques such as observation, interviews and peer assessments could be utilized.

Another limitation arises from the methodological challenge of establishing a fully causal relationship. Despite the use of structural equation modeling, one of the most robust techniques available for quantitative research, and even conducting mediation tests using bootstrapping in this study, caution is required when making interpretations about the direction of the pathways established in the model and in establishing a causal sequence. To clearly elucidate the sequence of fear of negative evaluation → academic procrastination → problematic smartphone usage, longitudinal and experimental studies are needed within the scope of this research.

Lastly, it is necessary to mention a limitation related to the sampling method and participant diversity. The use of convenience sampling in the study raises caution regarding the generalizability of the findings. Subsequent studies could provide a more detailed sample that can be better represented using the *Türkiye Statistical Regions Classification*.

In addition to these limitations, some suggestions can be made for future studies. The findings from this study can be utilized in the development of psycho-educational programs aimed at addressing problematic smartphone usage. Separately, it can be said that new studies are needed to explain how problematic smartphone use thrive in university students. In this context, longitudinal studies can be conducted to explore the mediating role of academic procrastination in the relationship between fear of negative evaluation and problematic smartphone usage. Furthermore, it can be investigated whether there are different mediator variables in the relationship between fear of negative evaluation and problematic smartphone usage.

Declaration of Contribution Rate of Authors

The study is single authored.

Statement of Support and Acknowledgment

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Conflict of Interest Declaration

There is no conflict of interest in this study.

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